USER MANUAL

F-Series

Sideshifter

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Number 219941-R10

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INTRODUCTION

This user manual is for Cascade F-Series Sideshifters. It contains an Operation Guide, Installation Instructions, and Recommended Spare Parts.

IMPORTANT: All hosing and flared fittings on F-Series Sideshifters are JIC as standard, with face seal as an option.

NOTE: All specifications are shown in US and (metric) units where applicable. All fasteners have a torque value range ±10% of stated value.

Special Definitions

The statements shown appear throughout this manual where special emphasis is required. Read all WARNINGS and CAUTIONS before proceeding with any work. Statements labeled IMPORTANT and NOTE are provided as additional information of special significance or to make the job easier.

WARNING – A statement preceded by WARNING is information that should be acted upon to prevent **bodily injury**. A WARNING is always inside a ruled box.

CAUTION – A statement preceded by CAUTION is information that should be acted upon to prevent machine damage.

IMPORTANT – A statement preceded by IMPORTANT is information that possesses special significance.

NOTE – A statement preceded by NOTE is information that is handy to know and may make the job easier.

WARNING: Rated capacity of the truck/attachment combination is a responsibility of the original truck manufacturer and may be less than shown on the attachment nameplate. Consult the truck nameplate.

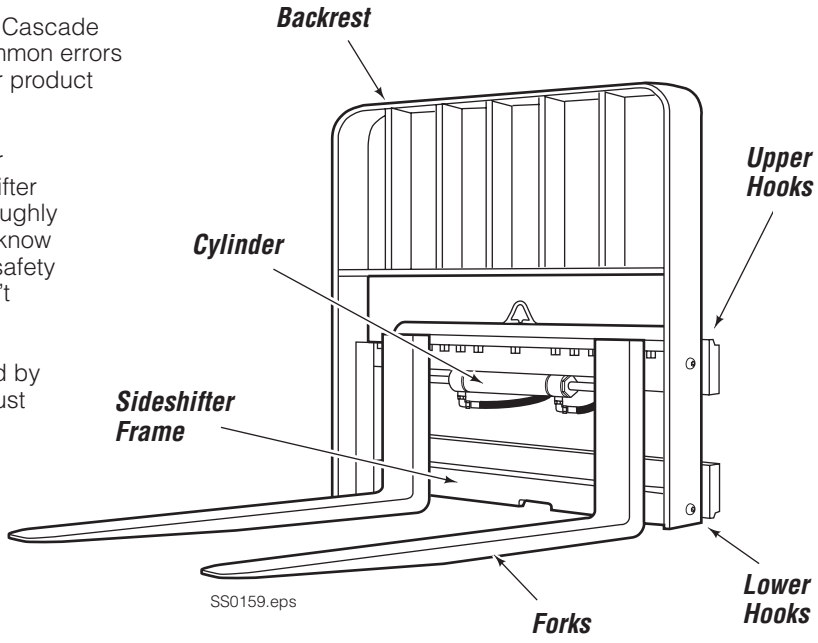
WARNING: Do not operate this attachment unless you are a trained and authorized lift truck driver.

OPERATION

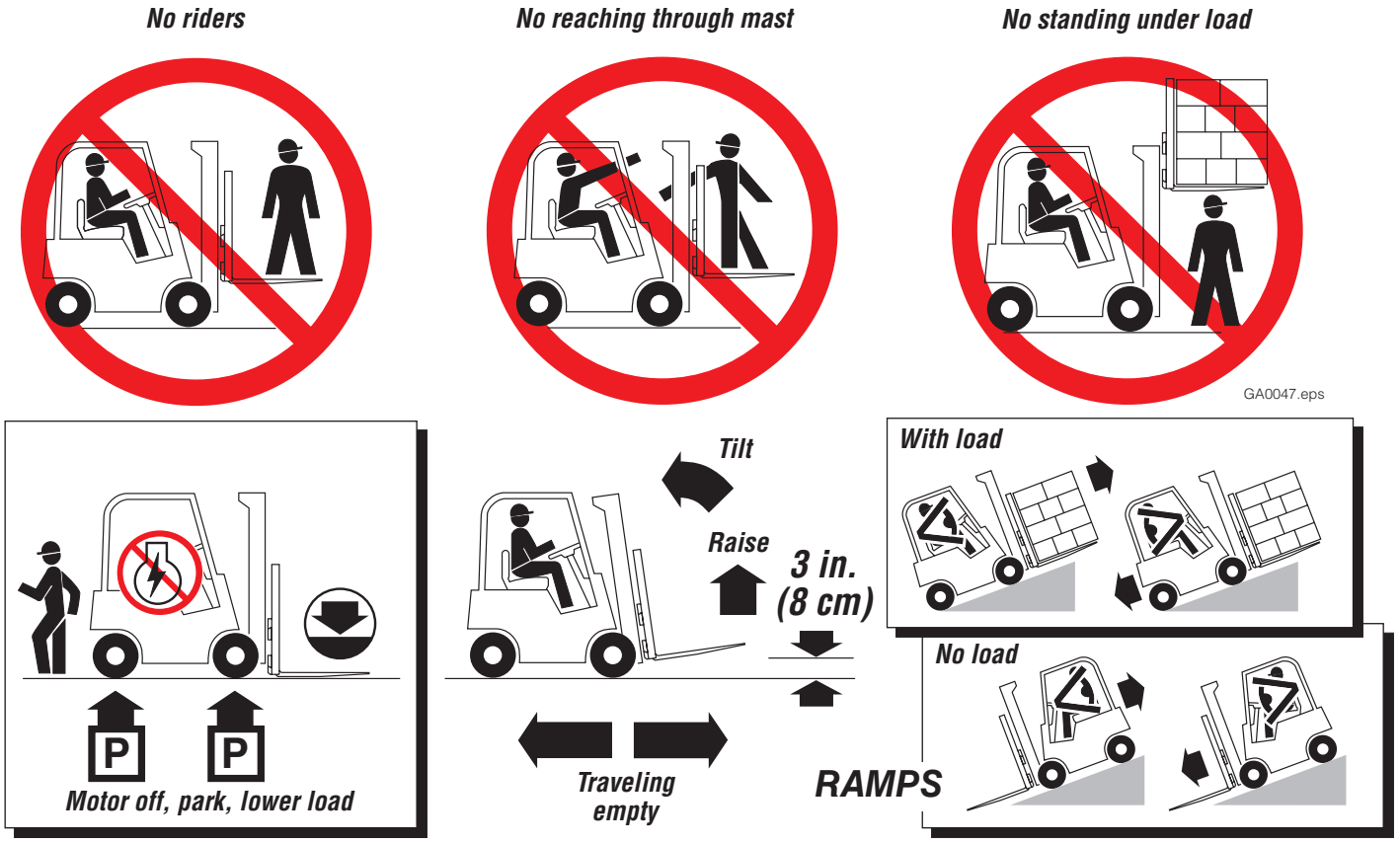
This section contains operating instructions for Cascade F-Series Sideshifters. It will help you avoid common errors which often cause damage to the equipment or product being handled.

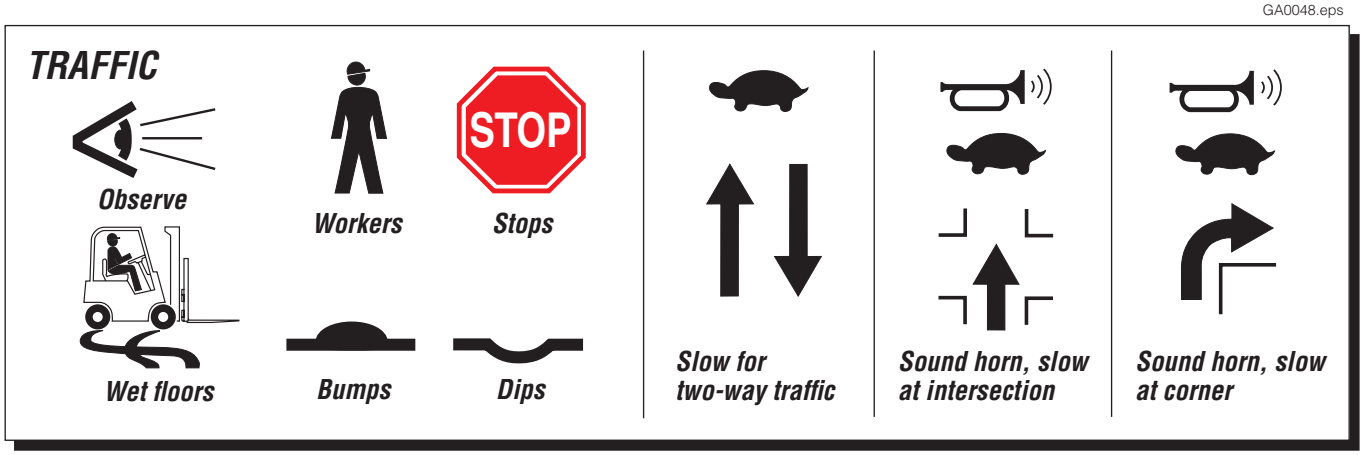
This information is intended to simplify operator understanding about effective and safe Sideshifter use and operation. Read this information thoroughly before operating the attachment. Be sure you know and understand all operating procedures and safety precautions. If you have any questions, or don't understand a procedure, ask your supervisor.

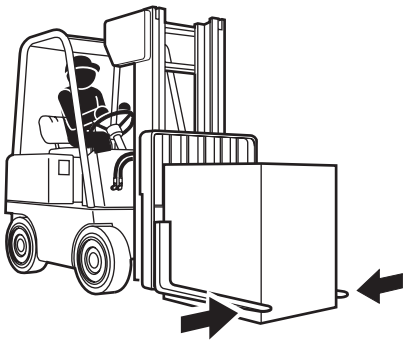
Emphasize Safety! Most accidents are caused by operator carelessness or misjudgment. You must watch for poorly maintained equipment and hazardous situations and correct them.



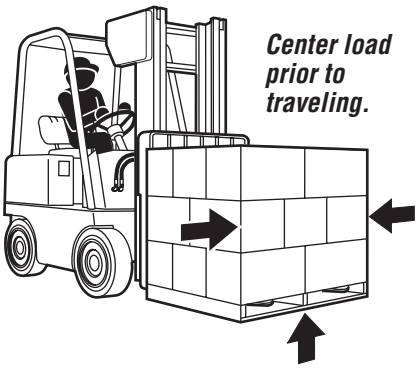
Safety Rules – Industrial Lift Trucks







CAUTION: Do not put side loads on forks.



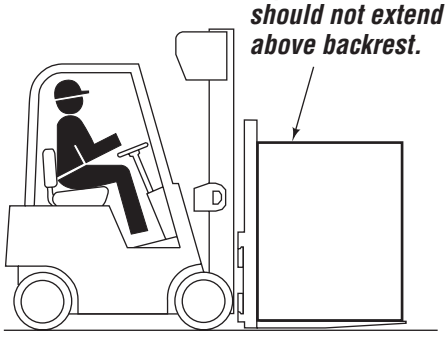
Center load prior to traveling.

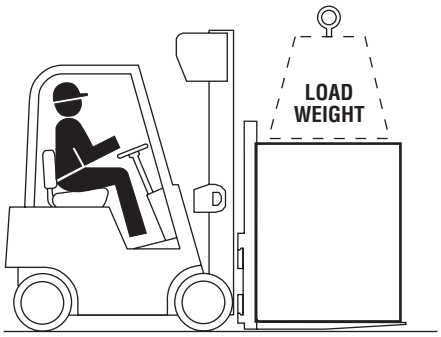
Raise load prior to sideshifting.

Limit sideshifting with raised load.

Limit truck movement with raised load.

Top of load should not extend above backrest.





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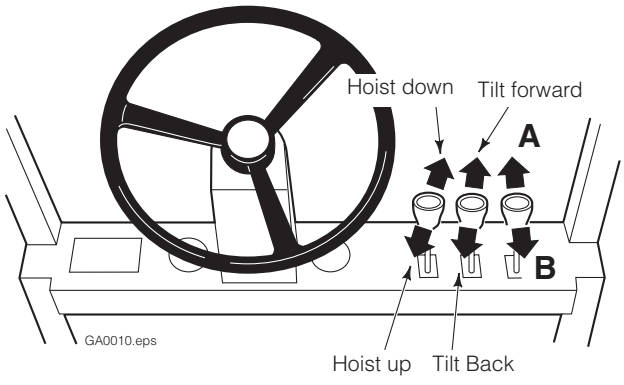
Load weight must not exceed combined truck/attachment capacity (see truck nameplate).

Total fork capacity (LH + RH fork) must be greater than load weight. Check capacity stamp on forks.

Sideshifter Operation

AUXILIARY VALVE FUNCTIONS



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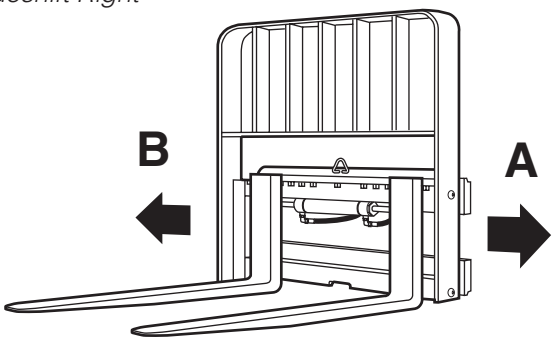
SIDESHIFTING

A *Sideshift Left*

B *Sideshift Right*



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SAFE OPERATION AND MAINTENANCE

OSHA Regulations – Industrial Trucks and Attachments (Specific Regulations from OSHA 1910.178)

WARNING: The safe operation and maintenance of industrial trucks is regulated by Occupational Safety and Health (OSHA) regulations 1910.178 and American National Standards Institute (ANSI) Safety Standard for Powered Industrial Trucks, ANSI B56.1. When operating and maintaining industrial trucks equipped with attachments you should pay particular attention to the following sections of these regulations. You should be familiar with all sections of these regulations. Ask your employer for the complete regulations.

(a) General Requirement

(4) Modifications and additions which affect capacity and safe operation shall not be performed by the customer or user without manufacturers prior written approval. Capacity, operation and maintenance instruction plates, tags or decals shall be changed accordingly.

(5) If the truck is equipped with front-end attachments other than factory installed attachments, the user shall request that the truck be marked to identify the attachments and show the appropriate weight of the truck and attachment combination at maximum elevation with load laterally centered.

(6) The user shall see that all nameplates and markings are in place and maintained in a legible condition.

(e) Safety Guards

(2) If the type of load presents a hazard, the user shall equip fork trucks with a vertical load backrest extension in accordance with (a)(2) following.

(a)(2) All new powered industrial trucks acquired and used by an employer after February 15, 1972 shall meet the design and construction requirements for powered industrial trucks established in the "American National Standard for Powered Industrial Trucks, Part II, ANSI B56.1", except for vehicles intended primarily for earth moving or over-the-road hauling.

(l) Operator Training

Only trained and authorized operators shall be permitted to operate a powered industrial truck. Methods shall be devised to train operators in the safe operation of powered industrial trucks.

(m) Truck Operations

(1) Trucks shall not be driven up to anyone standing in front of a bench or other fixed object.

(2) No person shall be allowed to stand or pass under the elevated portion of any truck, whether loaded or empty.

(3) Unauthorized personnel shall not be permitted to ride on powered industrial trucks. A safe place to ride shall be provided where riding of trucks is authorized.

(4) The employer shall prohibit arms or legs from being placed between the uprights of the mast or outside the running lines of the truck.

(5i) When a powered industrial truck is left unattended, load engaging means shall be fully lowered, controls shall be neutralized, power shall be shut off and brakes set. Wheels shall be blocked if the truck is parked on an incline.

(5ii) A powered industrial truck is unattended when the operator is 25 feet or more away from the vehicle which remains in his view, or whenever the operator leaves the vehicle and it is not in his view.

(5iii) When the operator of an industrial truck is dismounted and within 25 feet of the truck still in his view, the load engaging means shall be fully lowered, controls neutralized and the brakes set to prevent movement.

(6) A safe distance shall be maintained from the edge of ramps or platforms while on any elevated dock or platform or freight car. Trucks shall not be used for opening or closing freight doors.

(10) A load backrest extension shall be used whenever necessary to minimize the possibility of the load or part of it from falling rearward.

(n) Traveling

(4) The driver shall be required to slow down and sound the horn at cross isles and other locations where vision is obstructed. If the load being carried obstructs forward view, the driver shall be required to travel with the load trailing.

(7i) When ascending or descending grades in excess of 10 percent, loaded trucks shall be driven with the load upgrade.

(7iii) On all grades the load and load engaging means shall be tilted back if applicable, and raised only as far as necessary to clear the road surface.

(o) Loading

(1) Only stable or safely arranged loads shall be handled. Caution shall be exercised when handling off-center loads which cannot be centered.

(2) Only loads within the rated capacity of the truck shall be handled.

(3) The long or high (including multiple-tiered) loads which may affect capacity shall be adjusted.

(4) Trucks equipped with attachments shall be operated as partially loaded trucks when not handling a load.

(5) A load engaging means shall be placed under the load as far as possible; the mast shall be carefully tilted backward to stabilize the load.

(6) Extreme care shall be used when tilting the load forward or backward, particularly when high tiering. Tilting forward with load engaging means elevated shall be prohibited except to pick up a load. An elevated load shall not be tilted forward except when the load is in a deposit position over a rack or stack. When stacking or tiering, only enough backward tilt to stabilize the load shall be used.

(p) Operation of the Truck

(1) If at any time a powered industrial truck is found to be in need of repair, defective, or in any way unsafe, the truck shall be taken out of service until it has been restored to safe operating condition.

(q) Maintenance of Industrial Trucks

(1) Any power-operated industrial truck not in safe operating condition shall be removed from service. All repairs shall be made by authorized personnel.

(5) All parts of any such industrial truck requiring replacement shall be replaced only by parts equivalent as to safety with those used in the original design.

(6) Industrial trucks shall not be altered so that the relative positions of the various parts are different from what they were when originally received from the manufacturer, nor shall they be altered either by the addition of extra parts not provided by the manufacturer or by the elimination of any parts. Additional counter weighting of fork trucks shall not be done unless approved by the truck manufacturer.

(7) Industrial trucks shall be examined before being placed in service and shall not be placed in service if the examination shows any condition adversely affecting the safety of the vehicle. Such examinations shall be made at least daily. When industrial trucks are used on a round-the-clock basis, they shall be examined after each shift. Defects when found shall be immediately reported and corrected.

Truck Requirements

Truck Relief Setting

Iron Lower Hooks and Composite Bearings	Bronze Upper and Lower Bearings	
2000 psi (140 bar)	2600 psi (180 bar)	Recommended
3500 psi (240 bar)	3500 psi (240 bar)	Maximum

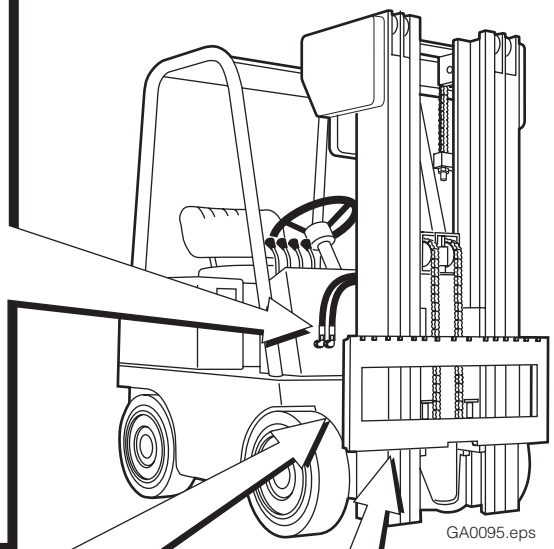
Truck Flow Volume ①

	Min. ②	Recommended	Max. ③
55F, 65F	1 GPM (4 L/min.)	2 GPM (7.5 L/min.)	3 GPM (12 L/min.)
100F, 120F, 150F, 165F	1 GPM (4 L/min.)	4 GPM (16 L/min.)	5 GPM (20 L/min.)

① Cascade F-Series Sideshifters are compatible with SAE 10W petroleum base hydraulic fluid meeting Mil. Spec. MIL-0-5606 or MIL-0-2104B. Use of synthetic or aqueous base hydraulic fluid is not recommended. If fire resistant hydraulic fluid is required, special seals must be used. Contact Cascade.

② Flow less than recommended will result in a slow sideshift speed.

③ Flow greater than maximum can result in excessive heating, reduced system performance and short hydraulic system life.



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Carriage Mount Dimension (A) ITA (ISO)

	Minimum	Maximum
Class II	14.94 in. (380.0 mm)	15.00 in. (381.0 mm)
Class III	18.68 in. (474.5 mm)	18.74 in. (476.0 mm)
Class IV	23.44 in. (595.5 mm)	23.50 in. (597.0 mm)

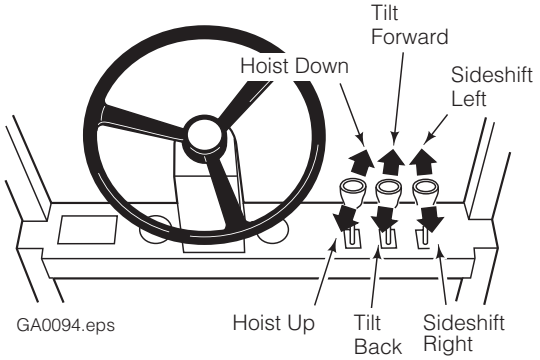
Carriage – Clean and inspect carriage bars. Make sure that bars are parallel and ends are flush. Grind smooth any protruding welds that may affect Sideshifter lower bearings. Repair any damaged notches.

Recommended Hydraulic Supply

The Sideshifter will require one of the hydraulic supply arrangements shown below. All hoses and fittings should be at least No. 4 with 3/16 in. (5 mm) minimum ID. Refer to Cascade *Hose & Cable Reel Selection Guide*, Part No. 212199 to select the correct hose reel for the mast and truck.

Auxiliary Valve Functions

Check for compliance with ANSI (ISO) standards:



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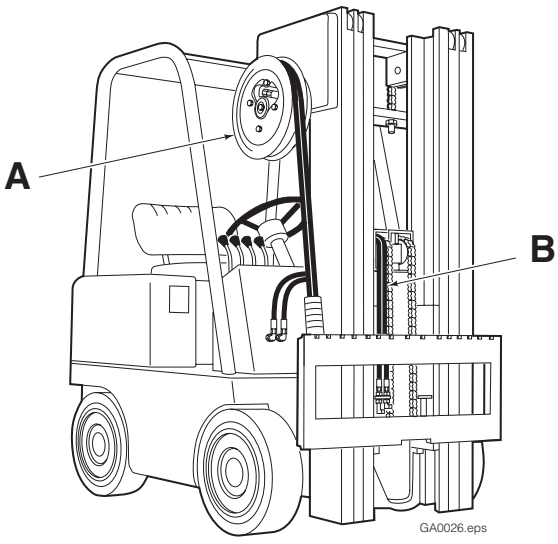

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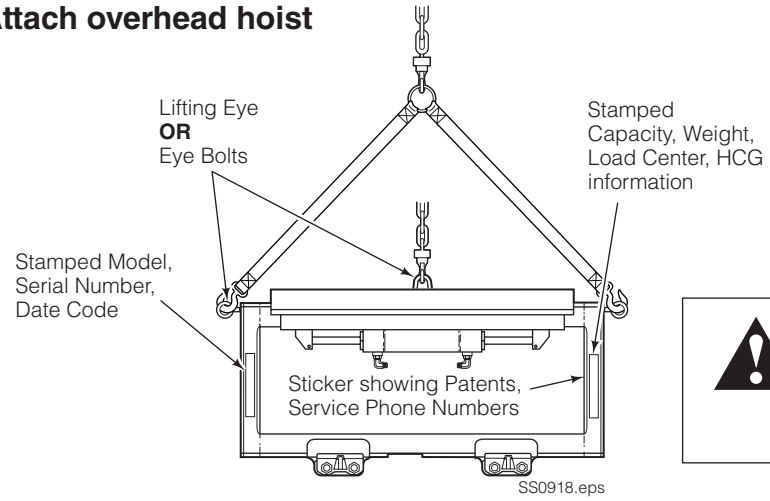
A RH THINLINE™ 2-Port Hose Reel Supply Group

OR

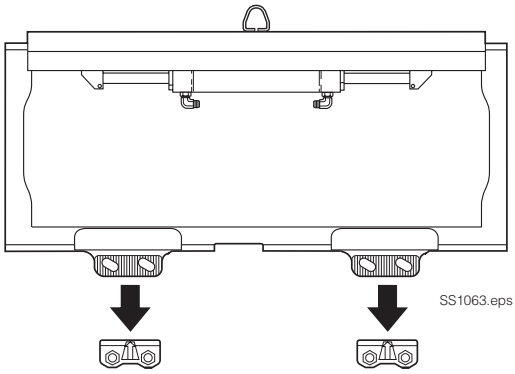
B Mast Single Internal Hose Reeving

1 Attach overhead hoist

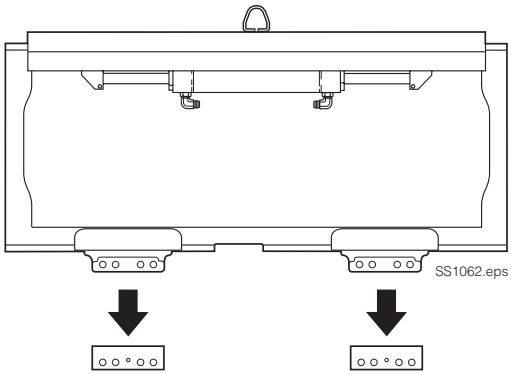


WARNING: Check the attachment weight (located on the nameplate) to make sure the overhead hoist and chains or straps are at least the rated capacity of the attachment.

2 Remove bolt-on lower hooks

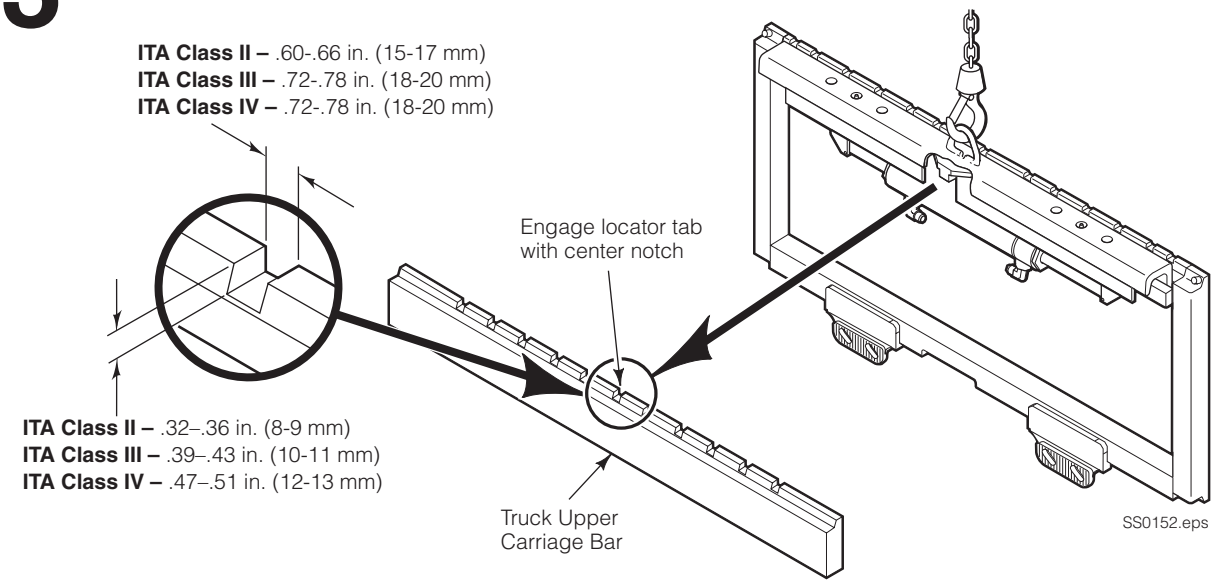


Two Capscrew Hooks



Four Capscrew Hooks

3 Mount Sideshifter on truck carriage


ITA Class II – .60-.66 in. (15-17 mm)
ITA Class III – .72-.78 in. (18-20 mm)
ITA Class IV – .72-.78 in. (18-20 mm)
Engage locator tab
with center notch
ITA Class II – .32–.36 in. (8-9 mm)
ITA Class III – .39–.43 in. (10-11 mm)
ITA Class IV – .47–.51 in. (12-13 mm)
Truck Upper
Carriage Bar
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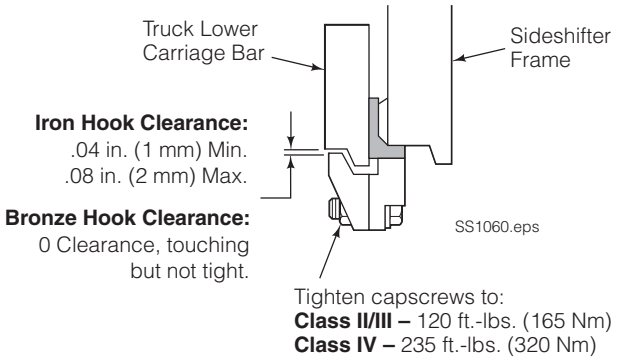
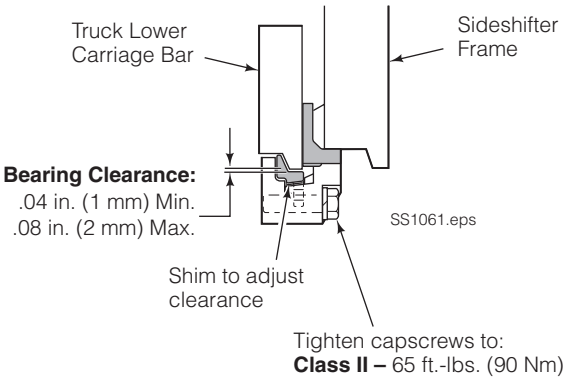
4 Install lower hooks

BOLT-ON HOOKS – Two Capscrew

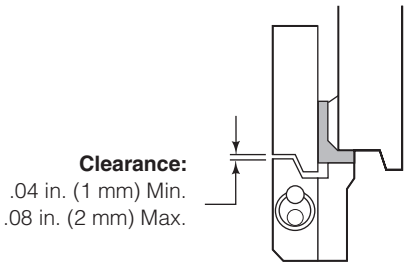

Truck Lower Carriage Bar
Sideshifter Frame
Iron Hook Clearance:
.04 in. (1 mm) Min.
.08 in. (2 mm) Max.
Bronze Hook Clearance:
0 Clearance, touching but not tight.
SS1060.eps
Tighten capscrews to:
Class II/III – 120 ft.-lbs. (165 Nm)
Class IV – 235 ft.-lbs. (320 Nm)

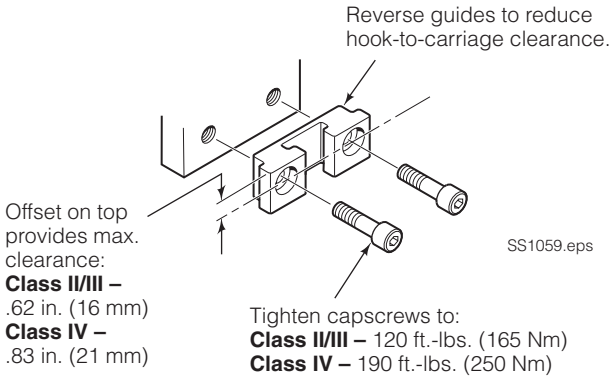
BOLT-ON HOOKS – Four Capscrew



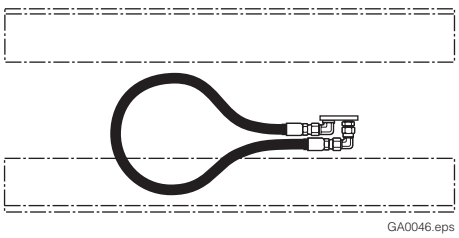
NOTE: If frame is equipped with a hydraulic component guard, remove the guard to access shims located on the lower fork bar.

QUICK-DISCONNECT HOOKS

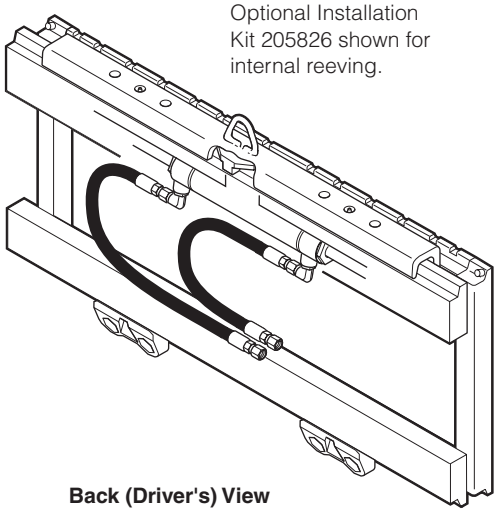



Reverse guides to reduce hook-to-carriage clearance.
Offset on top provides max. clearance:
Class II/III – .62 in. (16 mm)
Class IV – .83 in. (21 mm)
SS1059.eps
Tighten capscrews to:
Class II/III – 120 ft.-lbs. (165 Nm)
Class IV – 190 ft.-lbs. (250 Nm)

5 Flush supply hoses

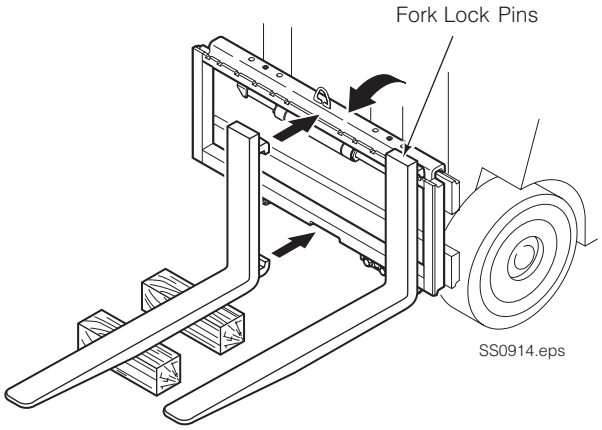


6 Install hoses

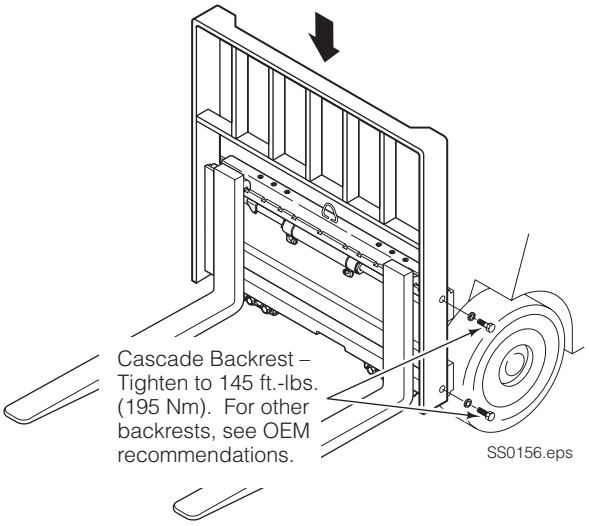


7 Install forks

WARNING: If the fork locking pin is not fully engaged, the fork could become disengaged from the carriage.



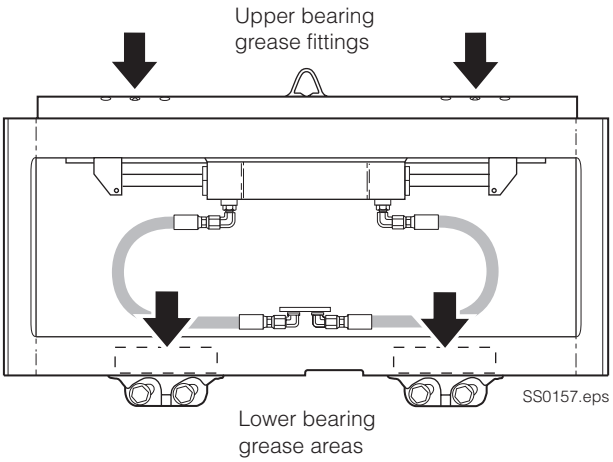
8 Install backrest



9 Lubricate lower bearings

Lubricate lower bearings with general-purpose chassis grease.

NOTE: Upper bearings are prelubed at the Factory with break-in grease. No lubrication is required during installation.



Daily

Check items shown each day. Report problems to your supervisor. See Service Manual for troubleshooting, maintenance and repair procedures.

WARNING: If the fork locking pin is not fully engaged, the fork could become disengaged from the carriage.

100-Hour

Every time the lift truck is serviced or every 100 hours of truck operation, complete the following maintenance procedures:

- Check for loose or missing bolts, worn or damaged hoses, hydraulic leaks, and damaged or missing fork stops.
- Inspect lower hooks for wear and proper clearance. Adjust if necessary, refer to Installation, step 4 . Tighten lower hook capscrews to:

  Two Capscrew Hooks
  Class II/III – 120 ft.-lbs (165 Nm)
  Class IV – 235 ft.-lbs (320 Nm)

  Four Capscrew Hooks
  Class II – 65 ft.-lbs (90 Nm)

300-Hour

After each 300 hours of truck operation, in addition to the 100-hour maintenance, perform the following procedures:

- Tighten backrest capscrews (Cascade) to 145 ft.-lbs. (195 Nm).
- Apply general-purpose chassis grease to Sideshifter upper and lower bearings.

1000-Hour

After each 1000 hours of truck operation, in addition to the 100 and 300-hour maintenance, perform the following procedures:

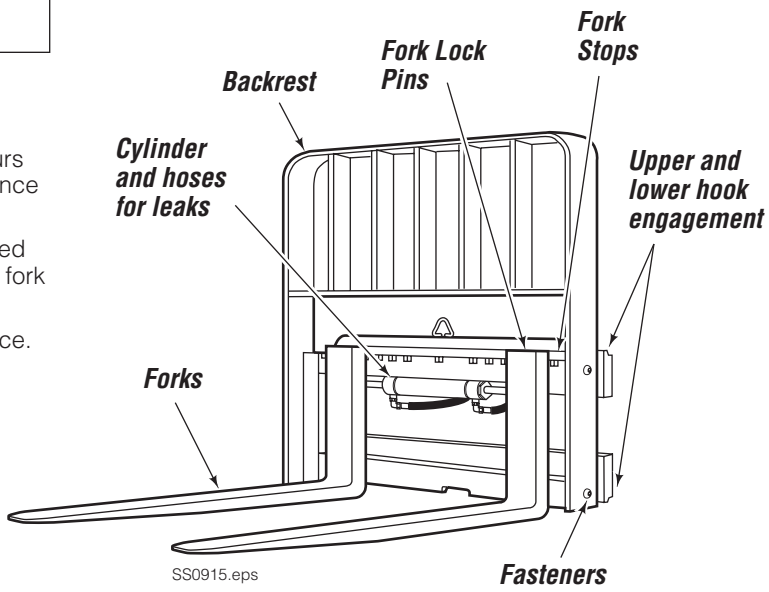
- Inspect upper and lower bearings for wear. If any bearing is worn to less than .09 in. (2.5 mm) thickness, replace the entire bearing set. Refer to service manual for replacement procedure.

2000-Hour

After 2000 hours of truck operation, in addition to the 100, 300 and 1000-hour maintenance, forks in use shall be inspected at intervals of not more than 12 months (for single shift operations) or whenever any defect or permanent deformation is detected. Severe applications will require more frequent inspection.

Fork inspection shall be carried out by trained personnel to detect any damage that might impair safe use. Any fork that is defective shall be removed from service. Reference ANSI B56.1-2005.

WARNING: After completing any service procedure, always test the sideshifter through five complete cycles. First test with no load, then test with a load to make sure the attachment operates correctly before returning it to the job.



2000-Hour (Continued)

Inspect for the following defects:

- Surface cracks
- Straightness of blade and shank
- Fork angle
- Difference in height of fork tips
- Positioning lock
- Wear on fork blade and shank
- Wear on fork hooks
- Legibility of marking

NOTE: Fork Safety Kit 3014162 contains wear calipers, inspection sheets and safety poster. Also available is fork hook & carriage wear gauge 209560 (Class II), 209561 (Class III) and 6105257 (Class IV).

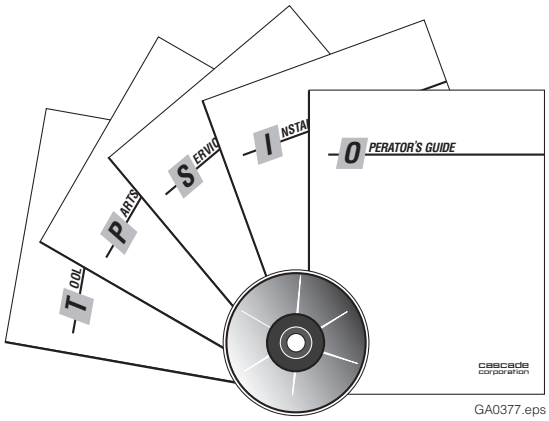
Recommended Spare Parts

55F PART NO.	65F PART NO.	100F PART NO.	120F, 150F, 165F PART NO.	DESCRIPTION	UNITS SERVICED 1-5 QTY.	6-19 QTY.	20-50 QTY.
6020486 ◆	6051249	6051249	6079936	Upper Bearing–Composite	8	16	32
6033486 ◆	6052405	6052405	6082297	Upper Bearing–Bronze	4	8	16
6033487 ◆	6057162	6057162	6057162	Lower Bearing–Composite	6	12	24
226842 ◆	6058041	6058041	6058041	Lower Bearing–Bronze	4	8	16
204186	204186	204186	6083157	Lower Hook	0	2	4
6818778	—	—	—	Lower Hook ●	0	2	4
6818788	—	—	—	Lower Hook Bearing–Bronze ●	4	8	16
6818771	—	—	—	Lower Hook Bearing Shim ●	6	12	24
206174	—	—	—	Capscrew, M12 x 45 ●	0	8	16
752903	752903	752903	—	Capscrew, M16 x 45	0	4	8
—	—	—	768580	Capscrew, M20 x 60	0	4	8
678990	678990	678990	—	Nut, M16	0	4	8
—	—	—	783800	Nut, M20	0	4	8
667225	667225	667225	215419	Washer	0	4	8
681473	—	—	—	Lockwasher, M12 ●	0	8	16
■	■	■	■	Cylinder Assembly	0	0	1
219868	219868	6091229	6091229	Cylinder Service Kit	1	2	4

◆ Kit containing two each of two different style bearings. Match the bearing being replaced.
■ Refer to part number stamped on part or supply serial number stamped on sideshifter frame when purchasing parts.
● Four Capscrew Hook applications.

Publications

PART NO.	DESCRIPTION
219941	User Manual
220526	Service Manual
679929	Tool Catalog
673964	Literature Order Form



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01-2015 Part Number 219941-R10